SECTION 5 | RECREATION

114. Recreational activities that may affect the lynx and its habitat include extensions or rerouting of groomed or designated trails for snowmobiling and cross-country skiing, accidental trapping or shooting, and recreation area expansions such as ski resorts, campgrounds, or snowmobile areas.[72] Snowmobile and cross country ski trails can introduce competition from other forest carnivores, such as coyotes, who lack the lynx's large furred paws specialized for deep snow travel.[73]

115. This analysis assumes implementation of the LCAS guidelines regarding recreation on all designated lands and therefore quantifies the impact of precluding development of new groomed trails across the study area. The primary recreational activities expected to incur costs associated with lynx conservation are snowmobiling and trapping.

116. This section is divided into five parts. The first presents a summary of impacts to recreation activities within the critical habitat. The second describes the methods and assumptions employed in this analysis. The third forecasts impacts to snowmobiling. The fourth addresses impacts on hunting and trapping, and the fifth describes other recreational activities.

5.1 SUMMARY OF IMPACTS TO RECREATION

117. Forecast impacts to recreation activities from 2006 – 2025 include:

Post-designation impacts in areas proposed for designation

- Undiscounted: $1.05 million - $3.46 million
- Present value applying a seven percent discount rate: $610,000 - $1.88 million (annualized $57,600 - $178,000)
- Present value applying a three percent discount rate: $811,000 - $2.6 million (annualized $54,500 – $175,000)

Post-designation impacts in areas considered for exclusion

- Undiscounted: $0 - $10,700

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[72] 70 FR 68294

[73] Ruediger, B., et. al. 2000. Canada lynx conservation assessment and strategy 2nd Edition. August 2000 (as amended Oct. 23-24, 2001, May 6-8, 2003 and Nov. 12-13, 2003). USDA Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, and National Park Service. Forest Service Publication #R1-00-53.

- Present value applying a seven percent discount rate: $0 - $5,720 (annualized at $0 - $540)
- Present value at applying a three percent discount rate: $0 - $7,970 (annualized at $0 - $536)

118. Pre-designation costs of lynx conservation efforts on recreational activities are related to hunter and trapper education programs considering the lynx as presented in Exhibit 5-1.

EXHIBIT 5.1 - TOTAL PRE-DESIGNATION ECONOMIC IMPACTS TO RECREATION

UNIT	SUBUNIT	TOTAL PRE-DESIGNATION COSTS (UNDISCOUNTED)		TOTAL PRE-DESIGNATION COSTS (PRESENT VALUE 7%) (2000-2005)		TOTAL PRE-DESIGNATION COSTS (PRESENT VALUE 3%) (2000-2005)	
PROPOSED FOR CRITICAL HABITAT DESIGNATION		LOW	HIGH	LOW	HIGH	LOW	HIGH
1: Maine	Private Timber lands	$300,000	$360,000	$383,000	$459,000	$333,000	$400,000
2: Minnesota	State DNR lands	*	$501	*	$574	*	$532
3: Northern Rockies	State of Montana Department of Fish, Wildlife & Parks	*	$501	*	$574	*	$532
Unit 4: North Cascades	State of Washington Department of Fish and Wildlife	$60,000	$60,000	$76,500	$76,500	$67,000	$67,000
TOTAL		$361,000	$421,000	$460,000	$537,000	$400,000	$467,000

*Impacts less than $500.
Totals may not sum due to rounding.

119. Post designation costs are forecast to result primarily from restrictions on the development of new snowmobile trails and continued trapper education efforts. Two scenarios are employed to bound the impacts to recreation activities, in order to account for uncertainty in the extent to which existing snowmobile trails can absorb the projected increases in snowmobiling activity, and thus the extent to which congestion associated with implementation of lynx conservation will impact snowmobilers; these scenarios are described in detail in Section 5.2.

120. Total forecast impacts to all recreation activities are presented in Exhibit 5-2. The majority of impacts forecast (approximately 80 percent) occur on private lands owned by timber companies in Maine, where snowmobiling and trapping activity is concentrated in this region.

EXHIBIT 5-2. TOTAL POST-DESIGNATION ECONOMIC IMPACTS TO RECREATION

UNIT	SUBUNIT	TOTAL POST-DESIGNATION COSTS (UNDISCOUNTED)		TOTAL POST-DESIGNATION COSTS (PRESENT VALUE 3%) (2006-2025)		TOTAL POST-DESIGNATION COSTS (ANNUALIZED 3%) (2006-2025)		TOTAL POST-DESIGNATION COSTS (PRESENT VALUE 7%) (2006-2025)		TOTAL POST-DESIGNATION COSTS (ANNUALIZED 7%) (2006-2025)	
PROPOSED FOR CRITICAL HABITAT DESIGNATION		SCENARIO 1	SCENARIO 2	SCENARIO 1	SCENARIO 2	SCENARIO 1	SCENARIO 2	SCENARIO 1	SCENARIO 2	SCENARIO 1	SCENARIO 2
1: Maine	National Park Service	$0	$3,770	$0	$2,800	$0	$188	$0	$1,980	$0	$187
	Baxter State Park Authority	$0	$5,350	$0	$4,000	$0	$266	$0	$2,810	$0	$265
	State Department of Conservation, Bureau of Parks and Lands	$0	$131,000	$0	$96,700	$0	$6,500	$0	$68,600	$0	$6,470
	Maine State Department of Inland Fisheries and Wildlife	$0	$5,720	$0	$4,240	$0	$285	$0	$3,000	$0	$283
	Private Timber lands	$1,000,000	$2,550,000	$766,000	$1,920,000	$51,500	$129,000	$567,000	$1,390,000	$53,500	$131,000
	Conservation NGO	$0	$31,100	$0	$23,000	$0	$1,550	$0	$16,300	$0	$1,540
	Unknown Landowner	$0	$212,000	$0	$157,000	$0	$10,500	$0	$111,000	$0	$10,500
2: Minnesota	Superior National Forest	$0	$55,900	$0	$41,800	$0	$2,800	$0	$30,000	$0	$2,830
	State DNR lands	$24,100	$85,400	$23,600	$69,500	$1,590	$4,670	$23,200	$56,100	$2,190	$5,300
	Private Timber Company Lands	$0	$2,010	$0	$1,500	$0	$101	$0	$1,080	$0	$102
	Private Mining Company Lands	$0	$1,620	$0	$1,210	$0	$81	$0	$867	$0	$82
	Unknown Landowner	$0	$107,000	$0	$80,400	$0	$5,400	$0	$57,700	$0	$5,440

UNIT	SUBUNIT	TOTAL POST-DESIGNATION COSTS (UNDISCOUNTED)		TOTAL POST-DESIGNATION COSTS (PRESENT VALUE 3%) (2006-2025)		TOTAL POST-DESIGNATION COSTS (ANNUALIZED 3%) (2006-2025)		TOTAL POST-DESIGNATION COSTS (PRESENT VALUE 7%) (2006-2025)		TOTAL POST-DESIGNATION COSTS (ANNUALIZED 7%) (2006-2025)	
PROPOSED FOR CRITICAL HABITAT DESIGNATION		**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**
3: Northern Rockies	State of Montana Department of Natural Resources and Conservation	$0	$14,500	$0	$10,800	$0	$725	$0	$7,710	$0	$728
	State of Montana Department of Fish, Wildlife & Parks	$2,000	$17,800	$1,530	$13,300	$103	$897	$1,130	$9,600	$107	$906
	University of Montana System	$0	$14,500	$0	$10,800	$0	$725	$0	$7,710	$0	$728
	Private Timber lands	$0	$14,500	$0	$10,800	$0	$725	$0	$7,710	$0	$728
Unit 4: North Cascades	State of Washington Department of Natural Resources	$0	$32,000	$0	$23,000	$0	$1,560	$0	$16,000	$0	$1,520
	State of Washington Department of Fish and Wildlife	$20,000	$180,000	$19,700	$134,000	$1,330	$8,980	$19,300	$94,000	$1,830	$8,870
TOTAL		**$1,050,000**	**$3,460,000**	**$811,000**	**$2,600,000**	**$54,500**	**$175,000**	**$610,000**	**$1,880,000**	**$57,600**	**$178,000**
CONSIDERED FOR EXCLUSION		**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**
Unit 2: Minnesota	Voyageurs National Park	$0	$10,700	$0	$7,970	$0	$536	$0	$5,720	$0	$540
TOTAL		**$0**	**$10,700**	**$0**	**$7,970**	**$0**	**$536**	**$0**	**$5,720**	**$0**	**$540**

Note: Totals may not sum due to rounding.

5.2 METHODS AND ASSUMPTIONS

5.2.1 SNOWMOBILING

121. This analysis assumes that the LCAS standards guiding snowmobiling activities are applied broadly across the study area. These standards have already been adopted by Federal agencies that have incorporated the LCAS into their land use planning (e.g., Superior National Forest), and by the Washington State Department of Natural Resources in their 2006 Lynx Habitat Management Plan.[74] Exhibit 5-3 describes these lynx conservation efforts related to snowmobiling.

EXHIBIT 5-3. SNOWMOBILING RECREATION STANDARDS FOR LYNX CONSERVATION FROM EXISTING LYNX MANAGEMENT PLANS

LYNX CONSERVATION EFFORT	SOURCE
Allowing no net increase in groomed or designated snow routes and snowmobile play areas within a lynx analysis unit.	LCAS
Mapping and monitoring snow compacting activities.	LCAS
Designing trails, roads, and lifts to direct winter use away from diurnal security habitat.	LCAS
No increases in designated or groomed over-the-snow routes or snowmobile play areas will be allowed within lynx geographic range managed by DNR. Additionally, increased organized snowmobile use within the lynx management zones will not be promoted.	Draft WADNR management plan

122. The LCAS also addresses lynx conservation associated with development of new downhill ski areas; however, no new downhill ski areas are forecast within the study area.

Welfare impacts to snowmobilers in the study area

123. Two scenarios are presented to bound potential impacts to snowmobilers associated with implementing the lynx conservation efforts described in Exhibit 5-3. Both scenarios assume that all designated lands will comply with LCAS standards for recreation. These scenarios are employed to capture the uncertainty of the effect of crowding on snowmobiler welfare.

- **Scenario 1 –** Scenario 1 assumes snowmobilers do not experience a reduced value for snowmobiling trips due to the application of LCAS standards for a combination of reasons:

  1. Congestion levels within the study area are relatively low; thus, no substantive deterioration in quality of snowmobiling experiences occurs under a scenario of no net increase in trail mileage. That is, the projected increases in congestion do not result in decreased participation or quality of experience due to abundant existing trails.

[74] Reudinger, B., et. al. 2000; Washington State Department of Natural Resources. Lynx Habitat Management Plan for DNR-Managed Lands. Final Draft. January 2006. p.41.

2. Despite growing numbers of registrations in the past, the number of miles of groomed trail has remained nearly constant. Information from the State snowmobile programs in the study area units indicates that snowmobile trail networks are well-established and rarely undergo expansions or closures.[75] Thus, despite projected increases in snowmobiling participation, it is possible that these areas do not require new trail development.

3. Substitute sites for snowmobiling outside of the study area accommodate increases in snowmobiling activity.

- **Scenario 2 -** Scenario 2 assumes that precluding development of new snowmobile trails increases congestion on existing trails and there is a resulting reduction in social welfare for all snowmobilers in the study area.

124. These two scenarios are employed to account for the uncertainty regarding whether the increase in congestion reduces the value of this activity to snowmobilers. Determining whether increased congestion is discernable and generates decreased utility is difficult because information is not available regarding baseline levels of congestion across the existing trail systems in the study area. While some information is available regarding numbers of snowmobiling participants, their distribution across existing trails is unknown.[76]

125. To the extent that increased congestion is observable (Scenario 2), the economics literature has considered the reduction in social welfare that can result from congestion at a recreational site. One such study provides insight into whether snowmobilers experience a reduction in surplus in response to an increase in congestion. This study was conducted for the National Park Service study to assess the impacts of temporary changes in snowmobiling regulations at Yellowstone National Park.[77]

126. The Yellowstone study applied a travel cost (random utility) model to assess the changes in surplus, in terms of per day willingness-to-pay values, associated with varying management regimes. The estimated reduction in willingness to pay resulting from a change from low to moderate crowding was $60-$70 per day, representing a reduction in willingness to pay of 22 percent due to greater congestion. In this study, this equates to about a 0.07 percentage point reduction in willingness to pay for each one percentage point increase in crowding. This reduction in willingness to pay is applied in this analysis.[78]

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[75] Personal communication with Maine Snowmobile Association, Maine Bureau of Parks and Lands Snowmobile Program, Minnesota Department of Natural Resources, Montana Department of Fish, Wildlife and Parks, Washington Snowmobile Association (Various dates).

[76] Communication with the groups cited in footnote 119 indicate that few data on trail use are available. Those data that are available come from trail counters in Minnesota that are characterized as unreliable by MNDNR staff.

[77] RTI, International 2004. Economic Analysis of Temporary Regulations on Snowmobile Use in the Greater Yellowstone Area. Final Report; and RTI, International 2005. Winter 2002-2003 Visitor Survey: Yellowstone and Grand Teton National Parks. Revised Final Report.

[78] See Appendix E for further explanation and justification of the applicability of this study to this analysis.

127. Scenario 2 of this analysis applies the following method to estimate the impacts of increased congestion across the study area as follows:

1. **Calculate miles of trail available for snowmobiling in each subunit -** Geographic Information System (GIS) data were used to determine the total available snowmobile trail miles within the study area.[79] Mileage estimates by subunit are presented in Exhibit 5-4.

2. **Estimate numbers of snowmobilers in the study area -** Detailed information regarding the number of snowmobilers recreating within the study area was not available. This analysis therefore applies the ratio of miles of trail in each unit to total miles of trail in the respective State to estimate the percentage of snowmobilers in the State recreating in each unit.

3. **Calculate expected growth in numbers of snowmobiling participation in the study area -** Increased participation in snowmobiling is projected using data on historical participation levels in each State. In each Unit, a State agency requires that both resident and non-resident snowmobiles be registered yearly. Records of these statewide registrations in each unit informed a simple linear regression of the number of registrants by year. In Minnesota and Washington, additional available studies projecting recreational use are considered in forecasting future snowmobile registrations. Accordingly, future growth in registrations per year are estimated based on the following growth rates: [80]

    - Unit 1 - Maine: 3.5%
    - Unit 2 - Minnesota: 2.5%
    - Unit 3 - Northern Rockies: 2.8%
    - Unit 4 - North Cascades: 5.2%

4. **Number of snowmobiling activity days per year currently taking place in these areas –** The analysis applies existing data regarding the number of snowmobile days in the study area units, as highlighted in Exhibit 5-5.

[79] Sources: Unit 1 - Maine Snowmobile Association. Unit 2 - Minnesota Department of Natural Resources GIS data deli: http://deli.dnr.state.mn.us/data_search.html. Unit 3 - Information provided by the State snowmobile program at the Montana Department of Fish, Wildlife & Parks (MTDFWP), regarding total trail miles in the study area and percentages of total Montana trails within various ownerships. Unit 4 - Washington State Parks and Recreation Commission, Winter Mapping office.

[80] Sources: Maine: Maine Snowmobile Association (MSA). March 9, 2006. Snowmobile registrations have been increasing steadily since the mid-1990s. Communication with MSA, and Scott Ramsay of Maine Bureau of Parks and Lands (March 17, 2006) indicated that during the winter of 2003-2004 there was very little snow in Maine. To provide a more accurate estimate of future impacts, this outlier year is excluded from the analysis. Minnesota: Minnesota Department of Natural Resources, Division of Trails and Waterways, March 21, 2006. Montana: Montana Department of Fish, Wildlife, and Parks Snowmobile Program. Washington: Washington State Commission of Parks and Recreation, March 14, 2006. Communication with Wayne Mohler, Washington State Snowmobile Association (March 9, 2006), indicated that during the winter of 2004-2005 there was very little snow in Washington. To provide a more accurate estimate of future impacts, this outlier year is excluded from the past registration numbers used in this analysis

5. **Determine willingness-to-pay for a day of snowmobiling per participant -** Existing studies are drawn upon to estimate willingness to pay for a snowmobile activity day. These studies and the associated values are reported in Exhibit 5-6. The median willingness-to-pay for a snowmobiling day applied in this analysis is $39.32.

6. **Calculate the decreased consumer surplus associated with increased snowmobiler congestion in the study area -** Based on the Yellowstone study, a one percent increase in congestion corresponds with a 0.07 percent decrease in an individual's welfare value per day. Therefore, for example, a 3.5 percent increase in congestion in Maine, corresponds to a 0.25 percent decrease in an individual's value per day, which results in a decrease of $0.10 per snowmobiling day (i.e., $39.32 multiplied by 0.25 percent). The median cost per day of $39.32 (from Exhibit 5-6), is multiplied by the percentage decrease in value per day of increased congestion to estimate the decrease in consumer surplus.

EXHIBIT 5-4. MILES OF SNOWMOBILE TRAIL WITHIN THE STUDY AREA

SUBUNIT	MILES	PERCENTAGE OF TOTAL STATE TRAILS	PERCENTAGE WITHIN THE STUDY AREA
UNIT 1 SNOWMOBILE TRAIL MILES			
TOTAL WITHIN THE STUDY AREA: 784		**TOTAL STATEWIDE :** 2,974	
National Park Service	2	<1%	<1%
Baxter State Park Authority	2	<1%	<1%
Maine Department of Conservation	58	2%	7%
Maine Department of Inland Fish & Wildlife	3	<1%	<1%
Private Timber Land	604	20%	78%
Conservation NGO Land	14	<1%	2%
Unknown Landowner	95	3%	12%
Tribal Land	6	<1%	<1%
TOTAL	784	26%	100%
UNIT 2 SNOWMOBILE TRAIL MILES			
TOTAL WITHIN THE STUDY AREA: 793		**TOTAL STATEWIDE :** 18,884	
Superior National Forest	186	<1%	23%
Voyageurs National Park	36	<1%	4%
Minnesota department of natural resources	200	1%	25%
Private Mining Company Lands	5	<1%	<1%
Private Timber Company Lands	7	<1%	<1%
Unknown landowner	358	2%	45%
TOTAL	793	4%	100%

SUBUNIT	MILES	PERCENTAGE OF TOTAL STATE TRAILS	PERCENTAGE WITHIN THE STUDY AREA
UNIT 3 SNOWMOBILE TRAIL MILES			
TOTAL WITHIN THE STUDY AREA: 260		**TOTAL STATEWIDE :** 4,071	
State (MTDNRC, MTDFWP, MT University system).	195	5%	75%
Private Timber Land	65	1%	25%
TOTAL	260	6%	100%
UNIT 4 SNOWMOBILE TRAIL MILES			
TOTAL WITHIN THE STUDY AREA: 29		**TOTAL STATEWIDE:** 3002	
Washington Department of Natural Resources	29	<1%	100%
TOTAL	29	<1%	100%

Sources: Unit 1: Maine Snowmobile Association. GIS of Interconnected Trail System Map. Provided by Carl Morrison via email. March 13, 2006.
Unit 2: Minnesota Department of Natural Resources. Data Deli. http://deli.dnr.state.mn.us/data_search.html Accessed March 17, 2006.
Unit 3: Personal Communication, Bob Walker, Montana Department of Fish, Wildlife and Parks.
Unit 4: Washington State Parks and Recreation Commission, Winter Mapping Program. Provided by Karen Behm, via email. March 14, 2006.

EXHIBIT 5-5. SNOWMOBILING DAY ESTIMATES IN EACH UNIT

UNIT	STUDY	AVERAGE SNOWMOBILING DAYS PER YEAR PER PERSON	ESTIMATED NUMBER OF SNOWMOBILE MACHINES IN AREAS PROPOSED FOR CRITICAL HABITAT* (2006)	ESTIMATED SNOWMOBILING DAYS IN THE STUDY AREA (2006)**
1	Rubin, et al. 2001.	23.47	26,264	637,988
2	Schneider, I. E. Ph.D., P.Elisabeth, R. Salk, and T. Schoenecker. 2005.	11.6	11,368	135,160
3	Sylvester, J.T. 2002.	15	1,848	28,504
4	Moore, D.L. 2000.	17.4	358	6,562

* Equal to most recent year available number of statewide registrations multiplied by the percentage of State trail miles within the unit.
** Equal to the estimated number of machines in the study area multiplied by the average number of snowmobiling days per year.
Sources:
Unit 1: Rubin, et al. 2001. Gasoline Consumption Attributable to Snowmobile Use in Maine. Prepared for The Commission to Study Equity in the Distribution of Gas Tax Revenues Attributable to Snowmobiles, All-Terrain Vehicles, and Watercraft. Margaret Chase Smith Center for Public Policy, The University of Maine.
Unit 2: Schneider, I. E. Ph.D., P.Elisabeth, R. Salk, and T. Schoenecker. 2005. *Snowmobiling in Minnesota: Economic impact and Consumer Profile.* University of Minnesota Tourism Center, with the analytical assistance of Analysis & Evaluation at the Department of Employment & Economic Development.
Unit 3: Sylvester, J.T. 2002. Snowmobiling in Montana 2002. Presented to the Montana Department of Fish, Wildlife & Parks and the Montana Snowmobile Association. Bureau of Business and Economic Research, The University of Montana.
Unit 4: Moore, D.L. 2000. 2000 Survey of Registered Snowmobile Owners in Washington State. Technical Report. Survey conducted by Social and Economic Sciences Research Center, for Washington State parks, Snowmobile Program, Washington State Snowmobile Association, State of Washington.

EXHIBIT 5-6. SOCIAL WELFARE VALUE OF SNOWMOBILE TRIPS FROM PREVIOUS STUDIES

GEOGRAPHIC REGION	DESCRIPTION	SOURCE	VALUE PER DAY ($2006)*
Yellowstone and Grand Teton National Parks	Willingness to Pay (WTP) calculated using travel cost method from data collected in a Winter 2002-2003 Visitor Survey for Yellowstone and Grand Teton National Parks. Study purpose was to evaluate alternative regulations on snowmobile use in the greater Yellowstone area. Values presented here are from the baseline scenario.	1	$32.89
West Yellowstone		1	$27.75
Continental Divide		1	$28.78
Wyoming	Consumer surplus calculated using travel cost method. Study considered Wyoming State Trail System use, and focused on market segmentation by motivation for snowmobile trip. The consumer surplus presented here is from their pooled sample.	2	$45.75
Wyoming and Utah	Consumer surplus averaged from two prior studies. Both studies calculated consumer surplus using the travel cost method.	3	$82
Park County, Wyoming	Net economic value of snowmobiling	4	$79.70
Median value per day		**-**	**$39.32**

* These values represent the amount that snowmobilers would pay per day over and above current cost.

1) RTI International. October 2004. Economic Analysis of Temporary Regulations on Snowmobile Use in the Greater Yellowstone Area: Final Report. Prepared for National Park Service, Environmental Quality Division, Dr. Bruce Peacock; MACTEC Engineering and consulting, Inc., BBL Sciences, and RTI International. July 2005. Winter 2002-2003 Visitor Survey: Yellowstone and Grand Teton National Parks: Revised Final Report. Prepared for the National Park Service, Environmental Quality Division, Dr. Bruce Peacock.

2) Coupal, R.H., C. Bastian, J. May, D.T. Taylor. 2001. Journal of Leisure Research. Fourth Quarter. 33:4. pp. 492-510.

3) Rosenberger, R.S., and J.B. Loomis. 2001. Benefit Transfer of Outdoor Recreation Use Values. A Technical Document Supporting the Forest Service Strategic Plan (2000 Revision). Gen. Tech. Rep. RMRS-GTR-72. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 59 p.

4) Taylor. 1999. Economic Importance of the Winter Season to Park County, Wyoming. University of Wyoming, Cooperative Extension Service, College of Agriculture, Department of Agricultural and Applied Economics. Report to Park County Commissioners.

Regional economic contribution of snowmobiling in the study area

128. This analysis also provides information on the regional economic contribution of snowmobiling in Maine and Minnesota, applying a regional economic model to quantify the dollar value of goods and services produced, and employment generated, by consumer expenditures.[81] Regional economic modeling accounts for the interconnectedness of industries within a geographic area -- that is, industries not only supply goods and services to consumers, but also to each other. Thus, spending in one economic sector tends to have a larger impact on the regional economy as a whole. This concept is commonly referred to as the "multiplier" effect. Commonly used by State and Federal agencies for policy planning and evaluation purposes, the model applied in this analysis,

[81] This analysis is only applied to Maine and Minnesota due to the relatively greater forecast impacts due to lynx conservation in these Units as compared with the Northern Rockies and North Cascades Units.

IMPLAN, translates estimates of trip expenditures into changes in demand for inputs to affected industries.[82] Changes in output and employment are calculated for all industries and then aggregated to determine the regional economic contribution of snowmobiling to the counties containing proposed critical habitat in Maine and Minnesota.

129. For purposes of this regional economic analysis, the study area in Maine includes Aroostook, Franklin, Piscataquis, Penobscot, and Somerset Counties. In Minnesota, the study area includes Lake, Cook, St. Louis and Koochiching Counties. The model draws upon data from several Federal and State agencies, including the Bureau of Economic Analysis and the Bureau of Labor Statistics.

130. IMPLAN translates expenditures (e.g., food, lodging, snowmobile repair, and gas) into changes from demand for inputs to affected industries. These effects can be described as direct, indirect, or induced, depending on the nature of the change:

- *Direct effects* represent changes in output attributable to a change in demand or a supply shock. These are specified initially by the modeler (e.g., the change in ranching expenditures on goods and services, by sector);
- *Indirect and induced effects* are changes in output industries that supply goods and services to those that directly affected by the initial change in expenditures; and Induced effects reflect changes in household consumption, arising from changes in employment (which in turn are the result of direct and indirect effects). For example, changes in employment in a region may affect the consumption of certain goods and services.

131. There are two important caveats relevant to the interpretation of IMPLAN model estimates, generally, and within the context of this analysis. The first is that the model is static in nature and measures only those effects resulting from a specific policy change (or the functional equivalent specified by the modeler) at a single point in time. Thus, IMPLAN does not account for posterior adjustments that may occur, such as the subsequent re-employment of workers displaced by the original policy change. A second caveat to the IMPLAN analysis is related to the model data. The IMPLAN analysis relies upon input/output relationships derived from 2002 data. Thus, this analysis assumes that this historical characterization of the affected counties' economies are a reasonable approximation of current conditions. If significant changes have occurred since 2002 in the structure of the economies of the counties in the study area, the results may be sensitive to this assumption. The magnitude and direction of any such bias are unknown.

132. The results of the IMPLAN analyses for Maine and Minnesota are presented along with the total welfare values of snowmobiling in Section 5.3 for context and to provide perspective to the estimated impacts to snowmobilers.

[82] The IMPLAN model is owned and maintained by the Minnesota IMPLAN Group, Inc. (MIG). For more information see: IMPLAN Professional, Social Accounting and Impact Analysis Software, User's Guide, Analysis Guide, Data Guide, Minnesota IMPLAN Group, Inc. 1997.

5.2.2 OTHER RECREATION IMPACTS

133. In addition to impacts to snowmobiling activity, the analysis describes and quantifies the existing and expected education efforts by State agencies associated with managing hunter and trapper education programs based on information gathered from affected agencies. Also, the analysis estimates impacts related to expected project modifications to two non-motorized recreation trails currently being constructed in Unit 2.

5.3 SNOWMOBILING SCENARIO 2: ESTIMATED IMPACTS BY SUBUNIT

134. The following sections characterize snowmobiling activity in each subunit. In each unit, State agencies are responsible for managing grant-in-aid snowmobile programs that provide funding to local clubs to maintain trails. A percentage of the State gas tax and snowmobile registration fees support these programs. Numerous local clubs participate in maintaining trail networks across a variety of land ownerships as well as in negotiating permissions to use the lands.

5.3.1 UNIT 1 - MAINE

135. In Unit 1, snowmobiling occurs predominantly on private and State lands. Two State agencies and networks of private landowners manage the activity. Snowmobiling is a popular sport in Maine, with registrations through the Maine Department of Inland Fisheries and Wildlife growing steadily since the mid 1990s, and totaling over 100,000 machines in 2004-2005. A 1998 study estimated the economic impact of snowmobiling in Maine at $261 million annually.[83]

136. Snowmobiling in Maine primarily occurs in the 'tourist belt' that reaches from the population centers along Maine's coast north and west toward less populated areas. Trails in this area are wider and longer than those closer to population centers, and thus attract more snowmobilers.[84] While there have been few changes to the extent of Maine's snowmobile trails, trail routes change within existing road networks from year to year in response to private landowners' logging activities and requirements.[85]

[83] An Economic Evaluation of Snowmobiling in Maine: An Update for 1997-98 Conducted by Stephen Reiling, Department of Resource Economics and Policy University of Maine, Orono, Maine 04469-5782 For: The Maine Snowmobile Association Available at: http://www.mesnow.com/Study.html

[84] Shorter, more narrow trails in closer proximity to population centers are not included as formally designated trails in Maine's trail system, the Interconnected Trail System (ITS), and therefore are not included in this analysis. Personal Communication. Scott Ramsay, March 13, 2006.

[85] Personal Communication, Bob Meyers, Director, Maine Snowmobile Association. March 9, 2006.

137. The majority of snowmobiling occurs in Maine on private lands. North Maine Woods (NMW), a non-profit organization formed in 1971 by the private landowners within the 3.5 million acre northwestern part of Maine, manages public use. Aside from snowmobile use to access ice-fishing points along the Allagash waterway, and some Interconnected Trail System (ITS) corridor and connector trails, there is no managed winter recreation in the NMW-managed lands and therefore, there is no record of how many snowmobiles operate on these private lands along the Allagash waterway each year. [86]

138. Exhibit 5-7 provides information on the total economic value of snowmobiling in Unit 1. The estimated reduction in consumer surplus associated with lynx conservation efforts on recreation activities are presented in Exhibit 5-8. The distribution of formalized snowmobiling trails across Unit 1 is presented in Exhibit 5-9.

EXHIBIT 5-7. TOTAL VALUE OF SNOWMOBILING IN UNIT 1: MAINE

VALUE OF SNOWMOBILING IN UNIT 1: MAINE (2006)	
Total Welfare Value of Snowmobiling(1)	$25,300,000
Direct Regional Economic Contribution(2)	$186,000,000
Indirect and Induced Regional Economic Contribution(2)	$89,400,000
Regional Employment(2)	5,080
Economic contribution of snowmobiling in study area as percentage of total economic activity in the study area. (2)	1.67%

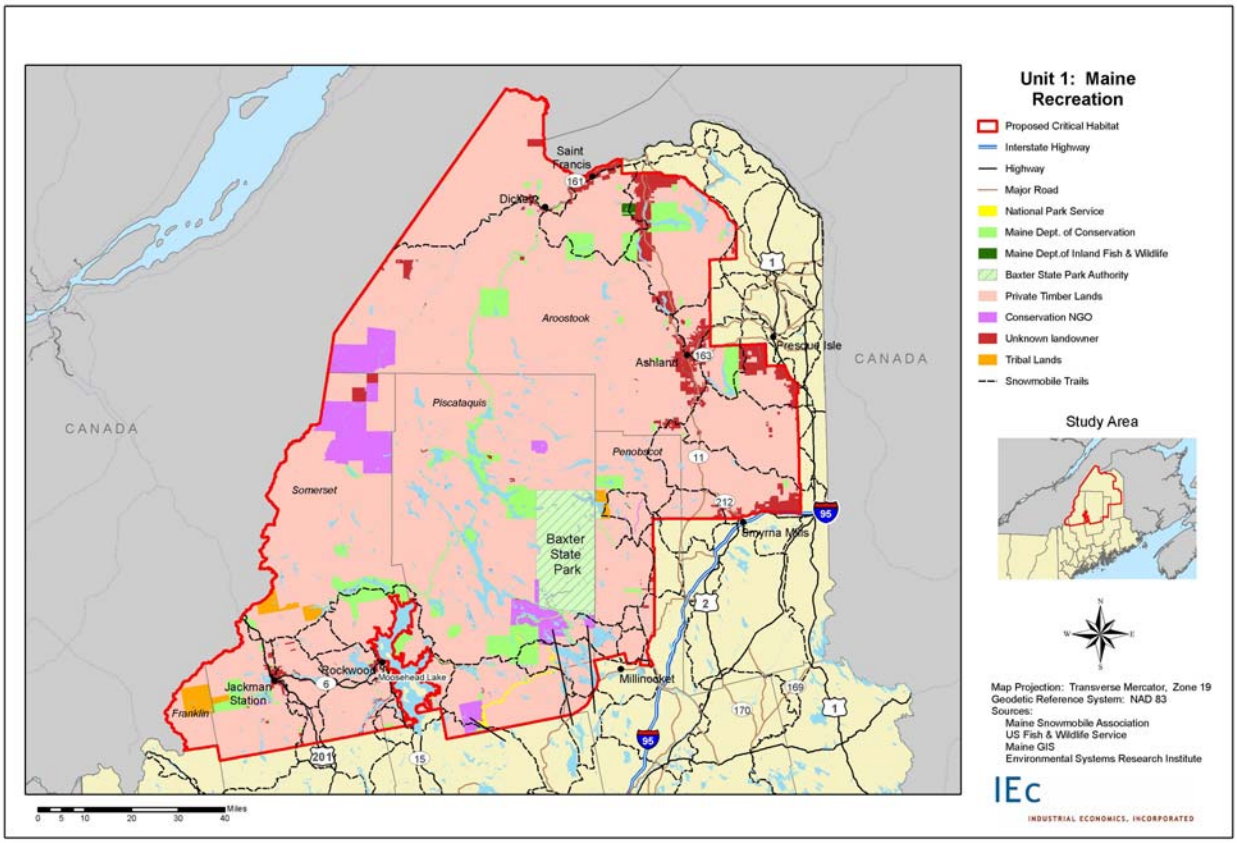
Sources: (1) Total participation in 2006 multiplied by willingness-to-pay. (2) Calculated in IMPLAN analysis.

[86] Personal Communication, Al Cowperthwaite, Director, North Maine Woods, Inc. March 8, 2006.

EXHIBIT 5-8. UNIT 1: MAINE FUTURE IMPACTS TO SNOWMOBILING BY SUBUNIT UNDER SCENARIO 2

SUBUNIT	POST-DESIGNATION COSTS UNDER SCENARIO 2 - 2006-2025				
PROPOSED FOR CRITICAL HABITAT DESIGNATION	UNDISCOUNTED	PRESENT VALUE 7%	ANNUALIZED 7 %	PRESENT VALUE 3%	ANNUALIZED 3%
National Park Service	$3,770	$1,980	$187	$2,800	$188
Baxter State Park Authority	$5,350	$2,810	$265	$3,960	$266
State Department of Conservation, Bureau of Parks and Lands	$131,000	$68,600	$6,470	$96,700	$6,500
Maine State Department of Inland Fisheries and Wildlife	$5,720	$3,000	$283	$4,240	$285
Private Timber Lands	$1,350,000	$709,000	$66,900	$1,000,000	$67,200
Conservation NGO	$31,100	$16,300	$1,540	$23,000	$1,540
Unknown Landowner	$212,000	$111,000	$10,500	$157,000	$10,500
Tribal Lands*	-	-	-	-	-
TOTAL	$1,740,000	$913,000	$86,200	$1,290,000	$86,500
*Impacts to tribes are presented in Section 9.					

EXHIBIT 5-9. SNOWMOBILE TRAILS IN UNIT 1: MAINE



5.3.2 UNIT 2 - MINNESOTA

139. Snowmobiling in Minnesota is focused in the northeast region of the State which experiences high quality snow over a long winter season (Exhibit 5-12 shows Minnesota snowmobile trails). There are 20,000 miles of trail statewide, and over 277,000 machines were registered in the State in 2004. A 2005 economic impact study of snowmobiling in Minnesota found that the direct snowmobiling expenditures in Minnesota totaled $199.6 million.[87]

140. Through the MNDNR-managed Grant-in-Aid program, local snowmobile clubs maintain Minnesota's trails across land ownerships.[88] Portions of four State trails fall within the study area.[89] Of these, the North Shore trail, managed by MNDNR, experiences the

[87] Schneider, I. E. Ph.D., P.Elisabeth, R. Salk, and T. Schoenecker. 2005. *Snowmobiling in Minnesota: Economic impact and Consumer Profile.* University of Minnesota Tourism Center, with the analytical assistance of Analysis & Evaluation at the Department of Employment & Economic Development.

[88] Personal Communication, Ed Quinn, Resource Coordinator, Parks & Recreation, Minnesota Department of Natural Resources, February 17, 2006

[89] They are the North Shore, Arrowhead, Taconite, and Tomahawk trails.

heaviest use and crosses four ownership types: private and private-industrial (6 percent), county (42 percent), State (17 percent), and Federal (35 percent) lands.[90, 91]

141. Trail counters used for the last ten years provide an estimate of the number of snowmobiles ranging from 12,000 to 25,000 per season on the North Shore Trail.[92] This contrasts with the other trails that receive less snow and have a shorter reliable snow season. For example, counts on the Taconite trail have shown an average of 3,000 to 4,000 snowmobiles per month in recent years. Due to the unreliability of these data, and consistent with the remainder of this analysis, registrations are used to estimate participation, rather than these counts.

142. Local trails also cross a combination of Federal, State, and county lands, as well as corporate timber and paper company lands, and private lands within the study area. Some corporate lands are being closed to snowmobile recreation, due to changes in management, or the perception that selling for development or recreation (hunting) leases is more profitable. No such closures are presently planned in the study area, but may limit trails in the future.[93]

143. State funds from MNDNR are used for maintenance and modernization of trails. Modernization, that widens or straightens existing trails, was pushed heavily by snowmobile clubs approximately five years ago, but the number of these projects is expected to be minimal in the future.[94, 95] One past informal section 7 consultation was conducted for a modernization project to widen, smooth sharp corners, and flatten the trailhead of the Gunflint trail in Minnesota. The U.S. Fish and Wildlife Service determined that the action would not increase compacted snow that might give lynx competitors an advantage, and allowed the project to continue as planned.

144. Exhibit 5-10 provides information on the total economic value of snowmobiling in Unit 2. The estimated reduction in consumer surplus associated with lynx conservation efforts on recreation activities are presented in the Exhibit 5-11. The distribution of formalized snowmobiling trails across Unit 2 is presented in Exhibit 5-12.

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[90] Personal Communication, Tom Peterson, Minnesota Department of Natural Resources, Division of Trails and Waterways, Two Harbors Office, March 3, 2006.

[91] Minnesota Department of Natural Resources. Unpublished Data, 2006. All-Terrain Vehicle Use on the North Shore State Trail: A Feasibility Study. Appendix A.

[92] Personal Communication, Tom Peterson. March 3, 2006.

[93] Personal Communication, Scott Kelling, Minnesota Department of Natural Resources, Division of Trails and Waterways, Tower Office. March 2, 2006.

[94] Personal Communication, Scott Kelling. March 2, 2006.

[95] The Minnesota United Snowmobilers Association (MUSA) has expressed concern that designation of critical habitat for the lynx in Minnesota is not appropriate, based on the lack of the deep fluffy snow required by lynx, and other supporting information. Comments to the U.S. Fish and Wildlife Service, from Minnesota United Snowmobilers Association. February 3, 2006; Personal Communication with Nancy Hanson, Business Coordinator, Minnesota United Snowmobilers Association.

EXHIBIT 5-10. TOTAL VALUE OF SNOWMOBILING IN UNIT 2: MINNESOTA

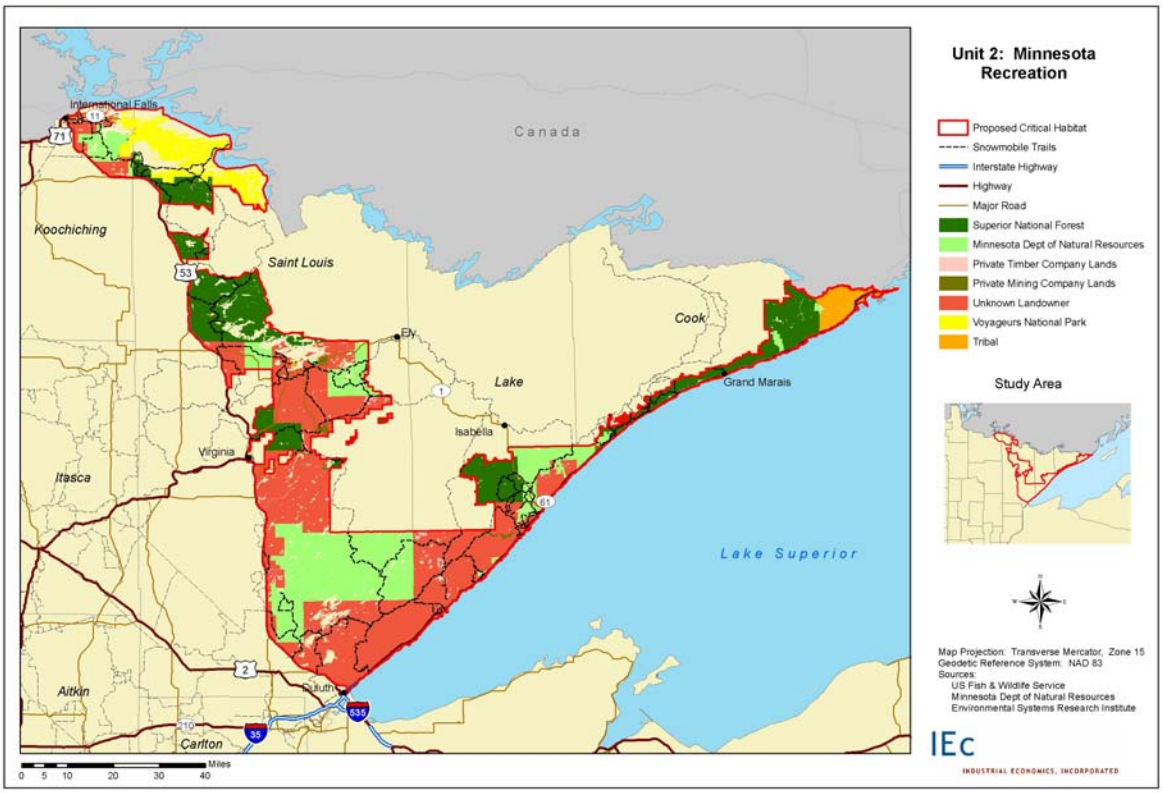
VALUE OF SNOWMOBILING IN UNIT 2: MINNESOTA (2006)	
Welfare Value of Snowmobiling[(1)]	$5,310,000
Direct Regional Economic Contribution[(2)]	$47,600,000
Induced and Direct Regional Economic Contribution[(2)]	$23,400,000
Regional Employment[(2)]	1,321
Economic contribution of snowmobiling in study area as percentage of total economic activity in the study area. [(2)]	0.56%

Sources: (1) Total participation in 2006 multiplied by willingness-to-pay. (2) Calculated in IMPLAN analysis.

EXHIBIT 5-11. FUTURE IMPACTS TO SNOWMOBILING IN UNIT 2 - MINNESOTA UNDER SCENARIO 2

SUBUNIT	POST-DESIGNATION COSTS UNDER SCENARIO 2 - 2006-2025				
PROPOSED FOR CRITICAL HABITAT DESIGNATION	UNDISCOUNTED	PRESENT VALUE 7%	ANNUALIZED 7 %	PRESENT VALUE 3%	ANNUALIZED 3%
Superior National Forest	$55,900	$30,000	$2,830	$41,800	$2,810
State DNR Lands	$60,000	$32,200	$3,040	$44,900	$3,020
Private Timber Company Lands	$2,010	$1,080	$102	$1,500	$101
Private Mining Company Lands	$1,620	$867	$82	$1,210	$81
Unknown Landowner	$107,000	$57,700	$5,440	$80,400	$5,400
TOTAL	**$227,000**	**$122,000**	**$11,500**	**$170,000**	**$11,400**
CONSIDERED FOR EXCLUSION	**UNDISCOUNTED**	**PRESENT VALUE 7%**	**ANNUALIZED 7 %**	**PRESENT VALUE 3 %**	**ANNUALIZED 3%**
Voyageurs National Park	$10,700	$5,720	$540	$7,970	$536
TOTAL	**$10,700**	**$5,720**	**$540**	**$7,970**	**$536**

EXHIBIT 5-12. UNIT 2: SNOWMOBILE TRAILS IN MINNESOTA



145. MNDNR produced a ten-year forecast of Minnesota adult outdoor recreation participation for the years 2004 to 2014.[96] Relying on MNDNR registration numbers, census data, and population projections, MNDNR expects a 4.3 percent decrease in snowmobile activity in terms of number of participants and annual hours of participation. It estimates that the percentage of the Minnesota population participating in snowmobiling will decrease by 16.8 percent by 2014. Communication with MNDNR staff indicates that the demand for snowmobile trails is largely satisfied, with the majority of trail work currently related to maintenance.[97]

146. Consistent with the methods employed in this analysis, however, by looking at past snowmobile registration numbers in Minnesota, the growth rate forecast for Minnesota is 2.5 percent per year.

[96] Kelly, Tim. 2005. Ten-year forecasts of Minnesota adult outdoor recreation participation, 2004-2014. Minnesota Department of Natural Resources. Office of Management and Budget Services.

[97] Ed Quinn, Scott Kelling, Tom Peterson, Minnesota Department of Natural Resources.

5.3.3 UNIT3 – NORTHERN ROCKIES

147. Snowmobiling in the study area in Montana occurs on State and private lands.[98] A recent study estimated that statewide, in the winter 2001-2002 season, nonresident snowmobilers spent over $46.5 million, and residents spent approximately $105.8 million during the same period on snowmobiling-related expenditures (2006 dollars).[99] The total welfare value of snowmobiling in the study area in Montana is estimated to be $1,120,000 in this analysis (2006 participation multiplied by willingness-to-pay).

148. The majority (over 96 percent) of snowmobiling in Montana occurs on Federal lands, less than one percent takes place on private lands, and the balance occurs on State lands. In the 2005-2006 season, 4,071 miles of snowmobile trail were groomed statewide in Montana.[100] The total number of groomed trails ranges between 3,950 and 4,150 from year to year, as logging activity locations can affect where grooming is allowed on approved trails.

149. The Montana Department of Fish Wildlife and Parks (MTDFWP) manages the State snowmobile program that provides coordination and funding of trail maintenance by local clubs.[101] Most snowmobile trails occupy existing roads. Since 2000, only one project to construct new trail has occurred in Montana. This project involved a two-mile stretch connecting to existing trail.[102] The most common trail projects are temporary or permanent rerouting in response to logging activity or new home construction, respectively.[103]

150. Every mile of trail that is maintained with money from the State snowmobile program is required to undergo a Montana Environmental Policy Act and National Environmental Policy Act (MEPA/NEPA) review. Different levels of review depending on the project are required. This review may include checks on snowmobile trail project activities, including consideration of adverse effects to unique, rare, threatened or endangered species or their habitat, and discussion of mitigating efforts that may be undertaken to protect any species or habitat.[104] Review of each project by a wildlife biologist is required, and can result in additional mitigations or project modifications.[105] To date, the MTDFWP's MEPA/NEPA review process has not triggered any project modifications due to lynx conservation on snowmobile trails in Montana.

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[98] Because snowmobiling is prohibited in Glacier National Park, no impacts are forecast. Recreation in Glacier National Park consists of hiking, camping, picnicking and wildlife viewing.

[99] Sylvester, J.T. 2002. Snowmobiling in Montana 2002. Presented to the Montana Department of Fish, Wildlife & Parks and the Montana Snowmobile Association. Bureau of Business and Economic Research, The University of Montana.

[100] Personal Communication. Bob Walker, Montana Department of Fish Wildlife and Parks, March 10, 2006.

[101] Personal Communication, Bob Walker. March 10, 2006.

[102] Ibid.

[103] Ibid.

[104] Montana Fish Wildlife & Parks, Environmental Analysis MEPA/NEPA Checklist. p.8.

[105] Montana Fish Wildlife & Parks, Outdoor Recreation Grants Wildlife Review Form. pp 1-2.

151. Applying the analysis described Section 5.2, estimated post-designation impacts to snowmobiling in areas proposed for designation are $57,800 in undiscounted dollars (a present value of $30,800 applying a seven percent discount rate or $43,100 applying a three percent discount rate). No impacts are anticipated in the areas considered for exclusion.

5.3.4 UNIT 4 – NORTH CASCADES

152. Snowmobiling occurs on Federal, State, and private lands within the study area in Washington State. There are a total of 3,000 to 3,500 miles of groomed snowmobile trails in Washington State. This analysis estimates that the total welfare value of snowmobiling in Unit 4 in 2006 is $258,000 (estimated participation multiplied by willingness-to-pay).

153. A 2003 study by the State of Washington estimates future participation in outdoor recreation in the State.[106] For snowmobiling, it estimates a 43 percent increase in the number of people participating by 2013.[107] This would be a total of an additional 14,711 participants by 2013; however there is no information on how many additional snowmobilers would become active in any given year. Due to this lack of information, the study's estimate is provided as context, but is not applied to the analysis. This analysis estimates a higher increase in the number of statewide registrations, 18,685, by 2013, based on recent trends.

154. The Washington State Snowmobile Association (WSSA), which represents all Washington State registered snowmobilers and nearly 100 snowmobile-related businesses, has expressed concern that designation of critical habitat will introduce a regulatory burden and potentially affect the snowmobiling industry and associated infrastructure, including gear and rental shops.[108] WSSA estimates that after recreation restrictions were adopted due to the lynx's listing, two snowmobile rental operations in the Okanogan region were forced to shut down and a remaining shop experienced a decline in business and lost revenues.[109]

155. Snowmobiling occurs on the Loup Loup block area, and on Loomis State Forest trails that are connected to the Okanogan-Wenatchee National Forest trail network. Loomis does not maintain visitor records, though on a sunny weekend day this year, 80 to 100

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[106] This study relies on National Survey on Recreation and the Environment (NSRE) projections for the Pacific Region, which includes Washington State, age group participation and age trends in Washington, estimates of resource and facility availability, user group organization and representation, and land use and land designations.

[107] Interagency Committee for Outdoor Recreation. Salmon Recovery Funding Board. Estimates of future participation in outdoor recreation in Washington State. March 2003.

[108] Personal Communication, Wayne Mohler, Past President/Legislation Committee, Washington State Snowmobile Association, March 10, 2006; Cherise Oram and Douglas J. Steding, Stoel Rives, LLP, February 23, 2006; and Gary Allard, member WSSA, February 16, 2006.

[109] Comments on Proposed Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx. Stoel Rives, LLP for the Washington State Snowmobile Association. February 1, 2006.

snowmobilers were present on Loomis Forest lands.[110] Of the 3,000 to 3,500 miles of trail statewide, only 29 miles are in the study area. The area is remote, and most snowmobile riding in the Loomis area is on ungroomed trails.[111]

156. In areas that will be covered by WADNR's draft lynx management plan, creation of new snowmobile trails is precluded, and there is no encouragement for additional use of existing trails. The specific guideline for trails in lynx management zones follows:

- No increases in designated or groomed over-the-snow routes or snowmobile play areas will be allowed within lynx geographic range managed by DNR.
- Closure of some areas that are currently used will be considered if specific areas of increased concern are identified and mutually agreed upon by DNR and the USFWS.
- Strategies to discourage inappropriate use will include signing of gated systems and placement of physical barriers along the entrance to trail or road systems where appropriate.
- Additionally, increased organized snowmobile use within the lynx management zones (LMZs) will not be promoted.[112]

157. While some trails in Washington are already considered overused, and a recent increase in grooming on trails in the area east of Loomis may indicate a trend toward increased development of trails in Washington, the WADNR lynx habitat management plan guidelines outlined above restrict such development within its LMZs.[113] These restrictions will cover the majority of trails in critical habitat.

158. Applying the analysis described in Section 5.2.2., estimated post-designation impacts to snowmobiling in Unit 4 areas proposed for designation are $31,700 in undiscounted dollars (present value of $16,100 applying a seven percent discount rate or $23,100 applying a three percent discount rate). No impacts are anticipated in the areas considered for exclusion.[114]

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[110] Personal Communication, Scott Fisher, Northeast Region, Washington Department of Natural Resources. February 13, 2006.

[111] Personal Communication, Wayne Mohler, March 10, 2006.

[112] Washington State Department of Natural Resources. Lynx Habitat Management Plan for DNR-Managed Lands. Final Draft. January 2006.

[113] Personal Communication, Wayne Mohler. March 10, 2006.

[114] Snowmobiling is prohibited in North Cascades National Park. The steep topography in the area precludes trail development beyond the existing 10 miles in a town within the Park, rendering the LCAS conservation measure of "no net increase in groomed or designated trails" inapplicable here. Personal communication with Roy Zipp, North Cascades National Park Complex, Environmental Protection Specialist. March 2, 2006.

5.4 HUNTING AND TRAPPING

159. Lynx conservation efforts related to hunting and trapping are for educational programs run by State agencies to assist trappers in identifying and avoiding incidental take of lynx.[115] Incidental shooting or trapping, and predator control are identified as possible risks to the lynx in the LCAS.[116] In 2003, the United States Fish and Wildlife Service (USFWS) and the International Association of Fish and Wildlife Agencies (IAFWA) produced a brochure titled, "How to Avoid Incidental Take of Lynx while Trapping or Hunting Bobcats and Other Furbearers" to assist State agencies in educating trappers and hunters.[117]

160. The following sections describe and quantify the existing and expected education efforts by State agencies associated with managing hunter and trapper education programs.

5.4.1. UNIT 1 - MAINE

161. In Maine, Maine Department of Inland Fisheries and Wildlife (IF&W) manages licensing and education programs that allow the public to participate in hunting and trapping. IF&W formerly managed a coyote snaring program that has since been halted due to concerns about lynx (see below education programs description). IF&W has spent $50,000 to $60,000 per year since 2000 on the following efforts related to lynx conservation in its trapper education program:[118]

- updates and changes to the 2003 brochure to incorporate Maine-specific information,
- annual mailings to licensed trappers including information on lynx,
- attendance at trapper association meetings, and
- operation of a 24-hour-a-day response program providing assistance to trappers who report having trapped a lynx.

162. Costs borne by IF&W for these combined efforts range between $300,000 and $360,000 per year. Future costs expected to be borne by IF&W for continued implementation of the trapper education programs, range from $1 million to $1.2 million in undiscounted dollars (a present value of $567,000 to $680,000 applying a seven percent discount rate or $766,000 to $919,000 applying a three percent discount rate). These impacts are expected to derive from the designation of private timber lands; no trapping occurs on IF&W lands, and the private timber lands provide the majority of available area for trapping within the study area.

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[115] The agencies are: Unit 1: Maine Department of Inland Fisheries and Wildlife; Unit 2: Minnesota Department of Natural Resources; Unit3: Montana Department of Fish, Wildlife and Parks; Unit 4: Washington Department of Fish and Wildlife.

[116] LCAS, page 2-15.

[117] "How to Avoid Incidental Take of Lynx while Trapping or Hunting Bobcats or Other Furbearers" is available online at: http://www.fws.gov/international/animals/lynx.htm (accessed March 13, 2006).

[118] Personal Communication, Ken Elowe, Maine Department of Inland Fisheries and Wildlife. February 23, 2006.

Coyote snaring program

163. From 1981 to 2003, IF&W hired hunters to snare coyotes near deer wintering yards to protect them from predation during the winter. In 2003-2004, the coyote snaring program implemented by IF&W was put on hold due to concerns that the snaring efforts posed a threat to the Canada lynx and bald eagle.[119]

164. The program typically cost $15,000 per year during its implementation. Having the program on hold, while eliminating the costs of program implementation, has resulted in significant use of staff time for IF&W to manage public concern equal to the amount of effort that was being put into the program implementation. There is therefore no cost savings estimated associated with removing program implementation costs.[120]

165. Information is not available to correlate the effect of the coyote snaring program on deer populations; it is therefore unclear whether hunting opportunity is impacted by the cessation of the program.[121]

5.4.2 UNIT 2 - MINNESOTA

166. The MNDNR has distributed the USFWS and IAFWA 2003 informational brochure to hunters and trappers. Since 2003, MNDNR estimates the total costs of this effort at approximately $300 to $500.[122] Assuming that the MNDNR's involvement in lynx-related hunter and trapper education remains the same into the future (i.e., $300 to $500 per three-year period), total post-designation cost are forecast at $2,000 to $3,340 in undiscounted dollars (present value of $1,130 to $1,890 applying a seven percent discount rate or $1,530 to $2,560 applying a three percent discount rate).

5.4.3 UNIT 3 - MONTANA

167. Similar to Unit 2, the 2003 USFWS/IAFWA brochure is made available to hunters and trappers by MTDFWP.[123] Absent State-specific information, this analysis assumes costs to MTDFWP are similar to those born by the MNDNR for the same effort. Pre-designation costs are therefore estimated at $300 to $500. Post-designation costs are forecast at $2,000 to $3,340 in undiscounted dollars (present value of $1,130 to $1,890 applying a seven percent discount rate or $1,530 to $2,560 applying a three percent discount rate).

5.4.4 UNIT 4 - WASHINGTON

168. The Washington Department of Fish and Wildlife (WADFW) has developed and distributed lynx identification materials to hunters in its predator control program for

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[119] Personal Communication, Ken Elowe. February 23, 2006, and IF&W's 2005-2006 Trapper information, available at: http://www.state.me.us/ifw/hunttrap/trapperinfo2005-2006.htm.

[120] Personal Communication, Ken Elowe, March16, 2006.

[121] Personal communication, Ken Elowe. February 23, 2006.

[122] Personal Communication, Conrad Christensen, Furbearer Specialist, Minnesota Department of Natural Resources. March 13, 2006.

[123] http://fwp.mt.gov/hunting/trapping/default.html (accessed March 15, 2006).

cougar since 2000. The cougar program licenses 150 to 170 people per year to hunt cougar with hounds for livestock predation prevention, and human safety protection. Cougar hunters receive information as part of their training, and a once-yearly brochure mailing for differentiating between lynx, and other forest carnivore cats, including a map identifying lynx management areas. The cougar hunting season takes place when cougars are at lower elevations, and rarely in lynx habitat, as identified by the WADFW and WADNR's management plans. Because cougar hunting activity is not bounded by the lynx management zones, and because some areas within the study area for the lynx are not included in the lynx management zones, the total program costs are reported in this analysis.

169. Legislation allows the current program to operate with a scheduled reevaluation after the 2006-2007 hunting season. After that point, it will either be terminated, or adopted, possibly permanently. WADFW has spent a total of $10,000 per year on these education efforts since 2000. Pre-designation costs total $60,000. With the low end assuming that the program is terminated in 2007, and the high end estimate assuming that it is adopted permanently, the post-designation costs are $20,000 to $180,000 in undiscounted dollars (present value of $19,300 to $94,000 applying a seven percent discount rate or $19,700 to $134,000 applying a three percent discount rate).

5.5 OTHER RECREATION ACTIVITIES

170. Cross-country skiing is identified as a possible threat to lynx because it often occurs on groomed trails. Data on miles of cross country ski trails within the study area is not available for all areas. In Units 1 and 3, cross-country skiing is not a formalized activity, and occurs on a variety of groomed, ungroomed, non-designated trails, and trails designed primarily for other uses. MTDNRC began charging a client-based fee for use of its trails in 2006. However, only 7.5 miles of cross-country ski trail are present in the study area on MTDNRC lands, and impacts due to lynx conservation are not expected. In Units 2 and 4, some permitting is required for use of State trails, but information is not available on where permitted cross country skiers recreate. Overall, absent information suggesting a demand for more groomed cross-country ski trails, and given the dispersed and non-formalized nature of the sport, impacts to cross-country skiing activities are not expected in the study area.

171. The LCAS identifies other recreation projects including construction of campgrounds, and ski-area expansions as potential threats to the lynx. No planned expansions of campgrounds or ski areas were identified within the study area. A past section 7 consultation for a campground construction in Maine, resulted in no project modifications.[124] The Pacific Northwest Ski Areas Association has expressed concern that designation of critical habitat could burden, or eliminate future development of ski areas in Washington.[125]

[124] Personal Communication, David Field, Ph.D. Overseer of Lands. Maine Appalachian Trail Club. March 10, 2006.

[125] Comments to the U.S. Fish and Wildlife Service. February 7, 2006.

172. Two non-motorized recreation trails are currently being constructed in Unit 2. Snowmobiling will be permitted on some sections of them, though their primary uses are for other sports.

The Gitchi-Gami

173. The Gitchi-Gami trail, once complete, will stretch 86 miles from Two Harbors to Grand Marais.[126] The trail will primarily be used for bicycling, running, and walking. Some sections of the trail utilize existing snowmobile routes, which will continue to be open to snowmobile use. In addition, sections that cross state park land will be groomed for cross-country skiing.[127]

174. The trail is being built primarily along existing and abandoned highway corridors, in a piecemeal fashion. These areas are considered developed, and therefore do not contain the primary constituent elements of lynx habitat. Approximately 10 percent, or 8.6 miles of the trail are being built in previously undeveloped areas. Assuming compliance with the LCAS no net increase in over-the-snow trails standard, 8.6 miles of trail would be closed elsewhere to offset the new portions of the Gitchi Gami. Based on estimated costs of road decommissioning in Superior National Forest, $1,000 per mile, post-designation costs are forecast to be $8,600.[128] Because the trail is a State designated trail, these costs are attributed to MNDNR.

The Mesabi Trail

175. The Mesabi trail will connect Grand Rapids to Ely and total 135 miles in length.[129] Trail use will be similar to the Gitchi Gami. Ninety percent of the fourteen-foot corridor trail is, or will be built on existing railway corridors, and old and abandoned mine roads. The remaining ten percent, 13.5 miles, of new trail construction occurs in separate pieces connecting the existing corridor sections.

176. One ten-mile section of the trail from Hibbing to Buhl is open to winter use by snowmobiles, through an agreement with the local snowmobile club that maintains it in winter months. No additional miles are expected to be groomed.[130] As for the Gitchi Gami, the miles of trail not being built in existing corridors, 13.5 miles, is multiplied by the cost of decommissioning a road, $1,000, and is presented as a total cost of $13,500 to MNDNR.

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[126] Personal Communication, Kevin Johnson, Division of Trails and Waterways. Minnesota Department of Natural Resources. March 2, 2006.

[127] Personal Communication, Kevin Johnson. March 2, 2006. The State Parks that will be crossed are: Gooseberry Falls, Tetegouche, Temperence River, Cascade, Judge Magney, and Split Rock Lighthouse.

[128] Provided by Mary Shedd, Wildlife Biologist, Superior National Forest, March 7, 2006.

[129] Personal Communication, Bob Manzoline, Director, St. Louis and Lake Counties Regional Railroad Authority. March 13, 2006.

[130] Ibid.